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Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hipermobilnych

The Assessment of Impact of the Kinesiology Taping on Changes in the Selected Motor Skills in the Hypermobile Female Dancers

Marlena Drężewska[1(A,B,C,D,E,F,G)], Ewa Frączek[1(B,D,E,F,G)], Zbigniew Śliwiński[1,2(A,B,C,D,E,F,G)]

[1]Uniwersytet Jana Kochanowskiego w Kielcach Wydział Lekarski i Nauk o Zdrowiu, Kielce, Polska/
Jan Kochanowski University in Kielce, Faculty of Medicine and Health Sciences, Kielce, Poland
[2]Uniwersytet Medyczny we Wrocławiu, Polska/Medical University in Wrocław, Poland

Streszczenie:

Wstęp. Wysiłek, zarówno fizyczny, jak i psychiczny podejmowany w dążeniu do osiągnięcia perfekcji w tańcu sprawia, iż podnoszenie jakości cech motorycznych jest dla tancerzy tak samo ważne, jak rozwój posiadanych umiejętności. W literaturze istnieją doniesienia, iż dy-namiczne plastrowanie ułatwia aktywację mięśni, co przyczynia się do wzrostu ich siły. Celem badania była ocena efektywności aplikacji KT w zwiększaniu siły mięśniowej u tancerek hipermobilnych po urazach.

Materiał i metody. Materiał badany stanowiło 44 tancerek jazzowych w wieku od 18 do 25 lat (M = 20,12; SD = 2,88), u których występowały dolegliwości bólowe narządu ruchu w dolnej części ciała. U wszystkich badanych stwierdzono hipermobilność stawową wg Sachse-go. U tancerek zastosowano aplikacje dynamicznego plastrowania przez trzy tygodnie, z trzy-krotną zmianą aplikacji dla wyselekcjonowanych grup mięśniowych oraz stawów obwodo-wych i kręgosłupa po przeprowadzeniu testów screeningowych. Przed i po terapii zmierzono siłę mięśniową wybranych mięśni za pomocą dynamometru MicroFet2.

Wyniki. Wyniki analizy wskazują, iż zastosowanie aplikacji KT sprzyjało istotnie wzrostowi siły następujących mięśni: czworobocznego lędźwi, gruszkowatego, pośladkowego średniego, pośladkowego wielkiego, biodrowo-lędźwiowego, dwugłowego uda, półścięgnistego i pół-błoniastego oraz przywodzicieli ($p < 0,05$). Nie stwierdzono wpływu dynamicznego plastro-wania na siłę mięśni: najszerszego grzbietu, prostego uda oraz naprężacza powięzi szerokiej ($p > 0,05$).

Wnioski. Zastosowanie aplikacji KT u tancerek hipermobilnych z dolegliwościami bólowymi narządu ruchu ma istotny wpływ na zmianę napięcia mięśniowego i siłę badanych mięśni.

Słowa kluczowe:
dynamiczne plastrowanie, kinesiology taping, taniec jazzowy, hipermobilność, siła mięśniowa

Abstract

Background. Both physical and mental effort undertaken in pursuit of perfection in the dance makes improving the quality of motor skills for dancers is just as important as the development of skills. In the literature there are reports that Kinesiology Taping facilitates muscle activity which contributes to increase their strength. The aim of the study was to eval-uate the effectiveness of KT application in improving muscle strength in female dancers with joint hipermobility after injury.

Material and methods. The research involved 44 jazz female dancers with musculoskeletal pain in lower part of the body. Average age of dancers was M = 20,12; SD = 2,88; Min = 18; Max = 25. All patients reported joint hipermobility by Sachse. In the dancers KT applications for three weeks, three times were used for selected groups of muscles, peripheral joints and spine after a screening test. Before and after treatment muscle strength of selected muscles were measured using a dynamometer MicroFet2.

Results. The analysis results indicate that the use of KT applications significantly contributed to the increased muscle strength following: quadratus lumborum, piriformis, gluteus medius, gluteus maximus, iliopsoas, biceps femoris, semitendinosus ald semimembranosus and adduc-tors ($p < 0,005$). There was no statistically significant difference in muscle strength after ap-plications for: latissimus dorsi, rectus femoris and tensor fascie late ($p > 0,05$).

Conclusions. Applications KT of dancers hypermobility of musculoskeletal pains have sub-stantial impact on the muscle tone and strength of muscle examined.

Key words:
Kinesiology Taping, dance, muscle strength, hipermobility

Introduction

To be a dancer means using one's own body and its movements to communicate with the world, it also means the constant search for the proprioceptive and the interoceptive channels, which would contribute to the so called "kinosphere" – the area around the body where its movements originate and where they are being executed [1, 2]. The greatest impact on the art of dancing, and the way a dancer moves, have the individual motor skills, that is the ability to perform the right movements at the right time. Both the physical and the psychological effort, engaged in the perfection pursuit in dancing, makes the improvement of the motor skills of a dancer as important as the development of his/her specific art.

The motor skills include: strength or the work of the muscles, the ability to overcome the external resistance or to withstand it. Speed or the response time and the frequency of movements. This depends mainly on the condition of the two: muscular and nervous systems. Endurance is the ability of the organism to deal with the long-term effort, and depends not so much on the functioning of the muscular system, as on the efficiency of the cardiovascular and the respiratory systems. Coordination means the arrangement of the various parts of the whole body, with the mutual relation between them in performing as one unit. Flexibility is the range of motion of the joints of a body, which is an important factor of the general health, and manifests itself mainly in the operation of the locomotor system, showing the efficiency of the musculoskeletal system [2, 3].

The basic measure of flexibility is its range, the spaciousness or the amplitude of movements in certain joints of the body. It should be noted, that often the expected in dancers, excessive joint mobility, called the hypermobility, brings about the most serious consequences leading to joints instability and the risk of injuries [4, 5, 6].

Hypermobility occurs more often in children than in adults, and in the greater ratio affects women than men. In the Western countries it is present in about 10% of the population. The hypermobility may be congenital, or it may be acquired as a result of the many years of stretching and other exercises, e.g. in dancers [5, 6, 7].

The physical requirements expected in the jazz dancers: desired joint hypermobility, strength and speed, the continuous pursuit of perfection, cause the permanent overload of the musculoskeletal and nervous systems. Injuries of joints which occur in dancing, like any other type of sports injuries, are caused by a variety of different factors: i.e. multiple repeated movements which exceed the physiological and mechanical capabilities of the organism, incorrect techniques, overtraining, increased tolerance to pain, accumulation of many micro injuries. Neglecting the proper regeneration of the body, not only quickly brings about injuries but also adds up to the psychological burnout in any given sport [8]. Despite having the joint hypermobility, the persons involved in training of any sport, should focus not on

the quantity of movement but on its quality, which – up to a point – would limit the factors leading to injuries.
To evaluate the presence of the joint hypermobility syndrome there are, inter alia, 13 clinical tests according to Sachse, which allow to precisely classify the range of mobility of the joint being examined [6, 8].
One of the methods used in physiotherapy, to deal with the disorders of the locomotor system, is the Kinesiology Taping (KT) method. The method is based on the application of the techniques, which support the natural self-healing processes of an organism of a patient. It may contribute not only to the mechanical, but also to the sensory changes. The basic idea of this method is to use the special tapes, which are similar in their properties to human skin. Such tape is made of cotton, and its inner layer is coated with the acrylic adhesive along a sinusoidal curve. The tape i roughly as thick as the human skin and stretches in one direction only, within the range of 130-140%. The properties of the structure of the tape, and the proper choice of its applications, make it possible to obtain the positive therapeutic results in persons, in whose case there are contraindications for other methods of the physiotherapy treatment [9, 10.11, 12].

Research Goal

The goal of this research project is to evaluate the functional disorders in the lower part of the body and the muscle strength, in the female hypermobile dancers with the pain symptoms in their locomotor system – after applying the KT method. The main goal is to be achieved by verifying the following hypotheses:
1. The female jazz dancers constituting the test group have the symptoms of the joint hypermobility.
2. In the female jazz dancers there are the functional disorders within the locomotor system of the lower part of the body.
3. Application of the KT method affects the muscle tension in the lower limbs.
4. Selected techniques of the KT method change the strength of certain muscles in the lower limbs.

Research Subject

There have been examined the total of 44 female dancers, 18-25 years old, performing the jazz dancing, who have had the pain symptoms in their lower body locomotor system. The test group consisted of 26 dancers, who had been subjected 3 times to the KT method applications. In the control group N = 18, the standard physiotherapy treatments had been applied, such as kinesitherapy, i.e. the selected muscle energy techniques, PIR (Post Isometric Relaxation of muscles) and stretching, as well as some elements of the selected physiotherapy methods – Butler's neurombilization technique and the PNF (Proprioceptive Neuromuscular Facilitation).
Research inclusion criteria:
– age 18-25,
– dancing experience minimum 2 years,
– dominant dance style: jazz,
– presence of the pain symptoms in the locomotor system of the lower body.

Research exclusion criteria:
– age outside of the 18-25 range,
– dancing experience of less than 2 years,
– dominant dance style: other than jazz,
– absence of pain in the locomotor system of the lower body.

Diagnostic Methods.

In order to determine the frequency of occurrence of the hypermobility among the dancers from the test and the control group, before the therapy, there have been performed once the 13 tests according to Sachse, taking into account the three assessment categories:
Category A – joint mobility within the range from hypomobility to normal mobility,
Category B – joint mobility normal or slight hypermobility,
Category C – joint mobility substantially increased, hypermobility.
Positive results in the minimum of 7 out of the 13 tests allow to confirm the joint hypermobility syndrome.

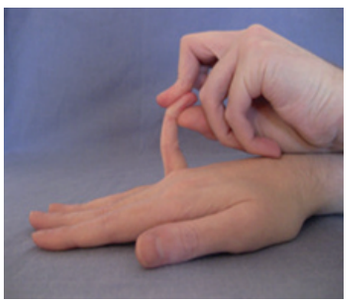

Fig. 1. Extension of the metacarpophalangeal joint of the 5th finger for more than 90°

Fig. 2. Adduction of the thumb to the front surface of the forearm

Fig. 3. Hyperextension of the elbow joint for more than 10°

Fig. 4. Hyperextension of the knee joints for more than 10°

Fig. 5. Flexion of the torso forward, in the standing position, with positioning the palms flat on the ground

Fig. 6. Hyperextension of the torso

Fig.7. Abduction in hip joints – lying on the back position

Test Group N-26
The test group consisted of 26 female dancers, 18-25 years old. M = 20.12 years old, M = 67.3 kg, M = 169.21 cm (Table 1).

Table 1. Selected anthropometric features in the test group

	Mean	SD	Minimum	Maximum
Age[years]	20.12	2.88	18	25
Weight [kg]	57.3	9.91	43	84
Height [cm]	169.21	6.66	159	185

The average experience in the test group amounted to M=10.56 and the frequency of the dancing exercises per week to 17.17 h (Table 2).

Table 2. Years of experience in dancing and the frequency of dancing exercises in the test group

	Mean	SD	Minimum	Maximum
Average experience [years]	10.56	4.90	3	21
Frequency [h/week]	17.17	17.09	3	49

Control Group N = 18
The control group consisted of 18 female jazz dancers, 18 to 22 years old, M = 19.04 years old, M = 59.28 kg, M = 170,24 cm in height (Table 3).

Table 3. Selected anthropometric features in the control group

	Mean	SD	Minimum	Maximum
Age[years]	19.04	1.24	18	22
Weight [kg]	59.28	10.31	47	79
Height [cm]	170.24	6.22	161	184

In the control group, the average dancing experience was 7.20 years, frequency of the dancing exercises per week amounted to 5.88 h (Table 4).

Table 4. Years of experience in dancing and the frequency of dancing exercises in the control group

	Mean	SD	Minimum	Maximum
Dancing experience [years]	7.20	2.36	4	12
Frequency of practice [h/week]	5.88	2.51	3	10

For the evaluation of the dysfunction in the lower body we have used the following screening tests:

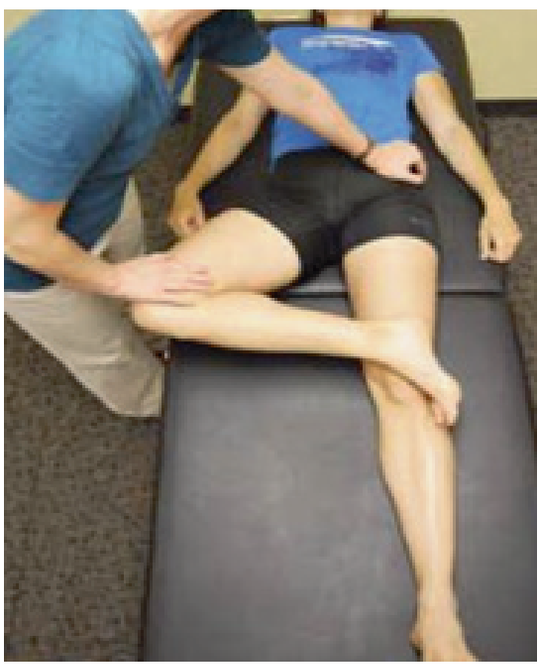

Fig. 8. Patrick Faber Test

Fig. 9. Abdominal compression test

Fig. 10. SLR test

Example of the KT techniques applied

Fig. 11. KT method application – 1. muscle technique on rectus femoris, 2. strapping technique in the area under the patella, 3. pain cross support on the greater trochanter of the thigh bone

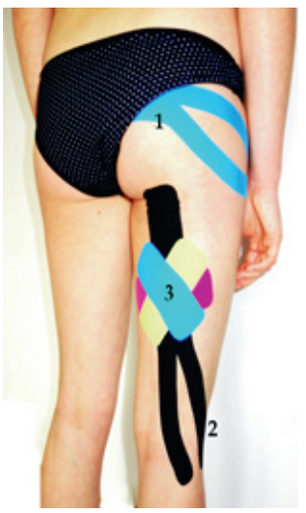

Fig. 12. KT method application – muscle technique: 1. piriformis muscle 2. biceps femoris, 3. Pain cross support in the area of pain

Fig. 13. Complete application for the "Goose foot" (Pes anserinus) with the muscle technique on the adductor magnus

Measurement Methods

Measurements of the muscle strength in Newtons, before and after the therapy, have been done with a digital, wireless dynamometer, type MicroFet2 for the manual measuring. High measuring range have been used for testing the larger muscle groups (1.2-55 kg) with the accuracy of not less than 0.4 kg. The device had the automatic calibration function.

Fig. 14. Wireless Dynamometer type MicroFet2

Table 5. Description of methodology for measuring muscle strength

Muscle tested	Position of tested person	Position joint/limb	Location of dynamometer
Latissimus dorsi	Lying on belly	Extension by 30° and internal rotation of shoulder joint, extension in elbow joint	Rear forearm surface proximally in relation to elbow joint
Lumbar quadrate	Sitting astride	Arms crossed on chest	Lateral surface of 6th-7th rib
Piriformis	Lying on belly	Flexion of knee joint by 90° and external rotation, extension in knee joint	Lateral lower leg surface distally in relation to knee joint
Gluteus medius	Lying on non-tested side	Abduction in hip joint to 30°	Lateral lower leg surface distally in relation to knee joint
Gluteus maximus	Lying on belly	Extension in hip joint by 30°, extension in knee joint.	Rear thigh surface proximally in relation to knee joint
Iliopsoas	Sitting position	Knee joint flexed by 90°, thigh raised, foot not touching the ground	Front thigh surface proximally in relation to knee joint
Rectus femoris	Sitting position	Extension of knee joint, foot not touching the ground	Front lower leg surface distally in relation to knee joint
Posterior thigh muscles group	Leżenie tyłem	Knee joint flexed by 90°	Rear lower leg surface distally in relation to knee joint
Tensor fasciae latae	Lying on back	Flexion and abduction of hip joint to 30°	Front-lateral lower leg surface distally in relation to the lower leg
Adductors group	Lying on the tested side	Non-tested limb load-relieved in abduction by 30°	Paracentral thigh surface proximally in relation to knee joint

Statistical Methods

For the results evaluation Student's t-test for related samples with the statistical significance value of $p < 0.05$ has been used. This is a commonly used method to evaluate the differences between the mean values in two groups. The idea of the related samples test is to compare with each other the same group of persons, observed twice.

Results

Measurement results of the muscle strength

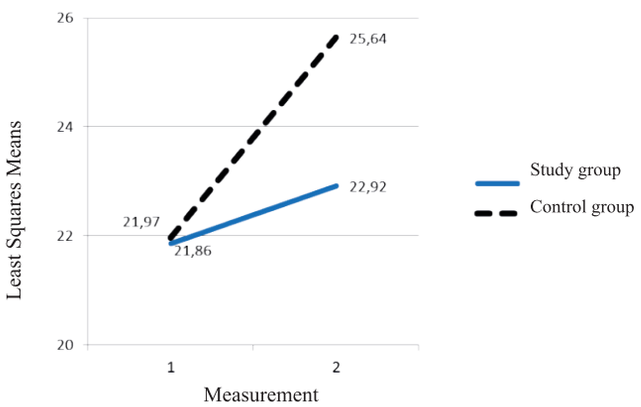

Fig. 15. The strength of the latissimus dorsi muscle on the right side, before and after the therapy, in the test and in the control group

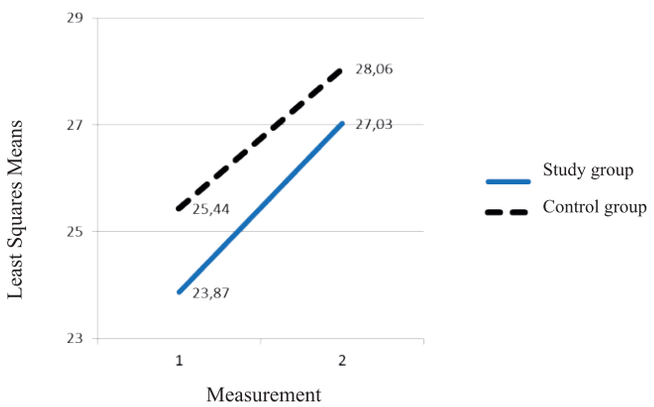

Fig. 16. The strength of the latissimus dorsi muscle on the left side, before and after the therapy, in the test and in the control group, left side before and after therapy in treated and control group

The muscle strength increased significantly in the control group $p = 0.001$, while in the test group the change was less significant $p = 0,153$ (Fig 15).

The change in the muscle strength was significant in both groups being compared, slightly bigger in the test group $p < 0,001$, than in the control group $p = 0.011$ (Fig 16).

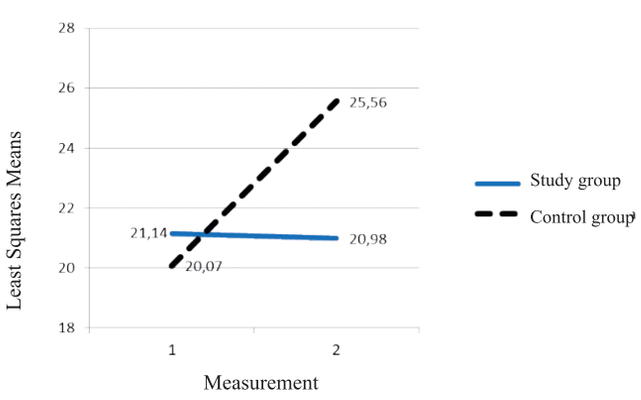

Fig. 17. The strength of the quadratus lumborum muscle on the right side, before and after the therapy, in the test and in the control group

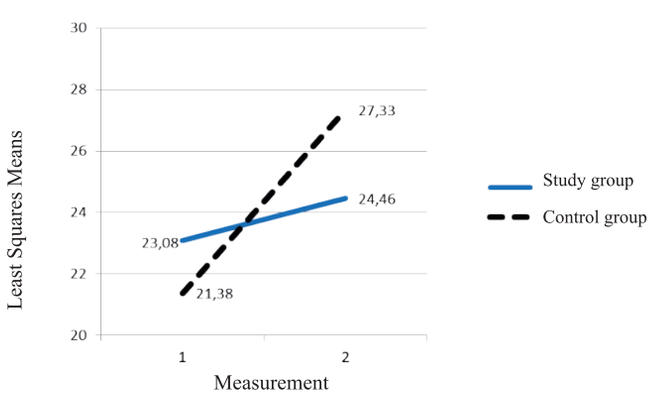

Fig. 18. The strength of the quadratus lumborum muscle on the left side, before and after the therapy, in the test and in the control group

The analysis shows that the muscle strength has increased only in the control group $p < 0.001$, while in the test group the change has been slight and not statistically significant p=0,821 (Fig. 17).
The effectiveness of the therapy in the increasing of the strength of the quadratus lumborum muscle on the left side has been similar to the right side. The KT method application in the test group has proved to be significantly less effective and has remained close to the accepted border value of the statistical significance $p = 0.063$ (Fig. 18).
A significant increase of the muscle strength in both groups has been observed, more so in the test group $p< 0.001$, than in the control group $p = 0.032$ (Fig. 19).
A significant change on the border value of the accepted statistical significance has been observed in the strength of the piriformis muscle on the left side, but the effect has only occurred in the test group $p = 0.065$ (Fig. 20).

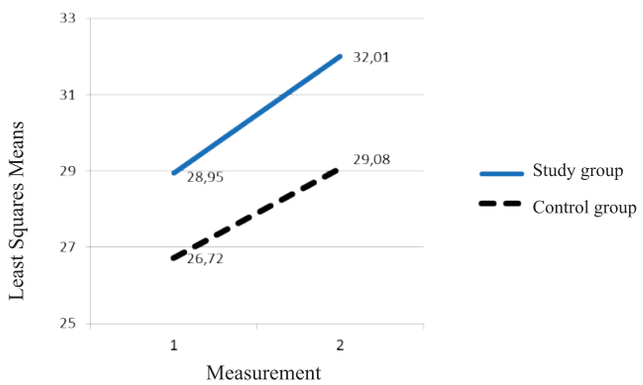

Fig. 19. The strength of the piriformis muscle on the right side, before and after the therapy, in the test and in the control group

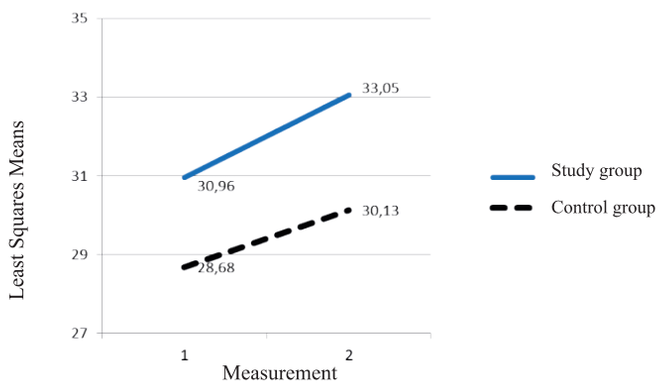

Fig. 20. The strength of the piriformis muscle on the left side, before and after the therapy, in the test and in the control group

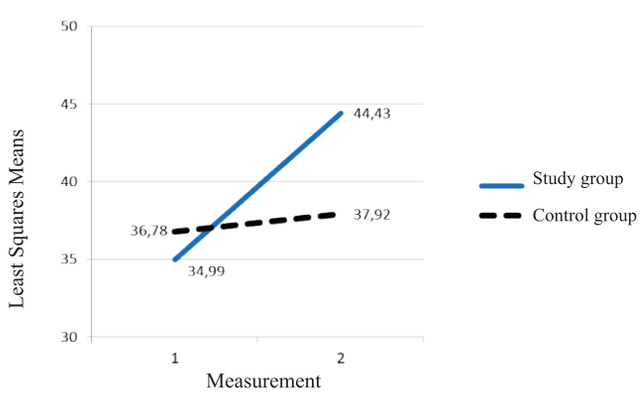

Fig. 21. The strength of the gluteus medius muscle on the right side, before and after the therapy, in the test and in the control group

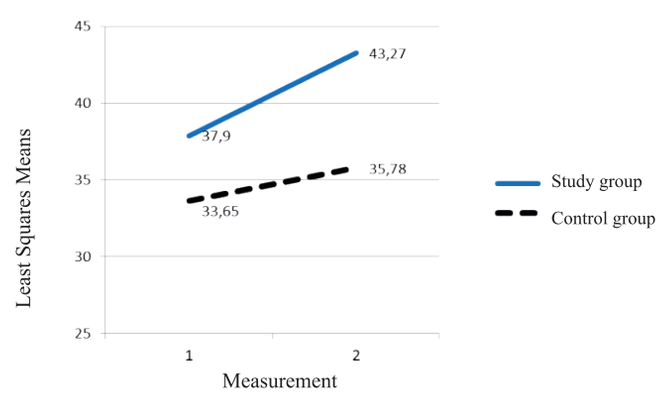

Fig. 22. The strength of the gluteus medius muscle on the left side, before and after the therapy, in the test and in the control group

Analysis of the results has shown a significant increase of the muscle strength in the test group $p < 0.001$ (Fig. 21).
Significant change of the muscle strength has occurred only in the test group $p < 0.001$, while in the control group it has been completely not significant statistically $p = 0.120$ (Fig. 22).
Analysis of the results for the muscle has shown the increase of the muscle strength in both groups, more so in the test group $p < 0.001$ (Fig. 23).
Thorough analysis has shown, that the increase of the muscle strength has been significant only in the test group $p < 0.001$. The change in the control group has been slight and not statistically significant $p = 0.148$ (Fig. 24).

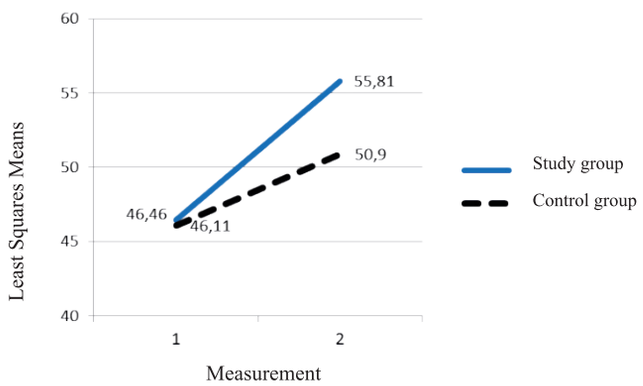

Fig. 23. The strength of the gluteus maximus muscle on the right side, before and after the therapy, in the test and in the control group

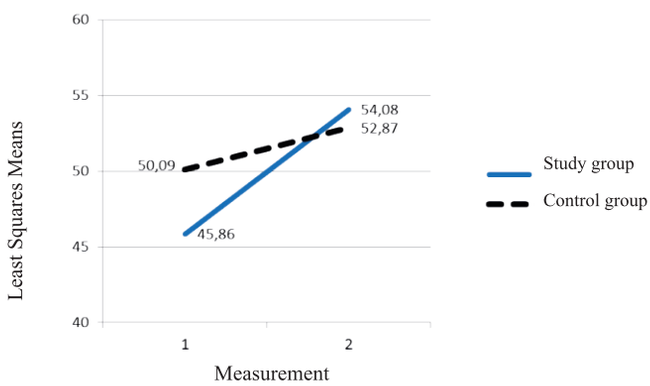

Fig. 24. The strength of the gluteus maximus muscle on the left side, before and after the therapy, in the test and in the control group

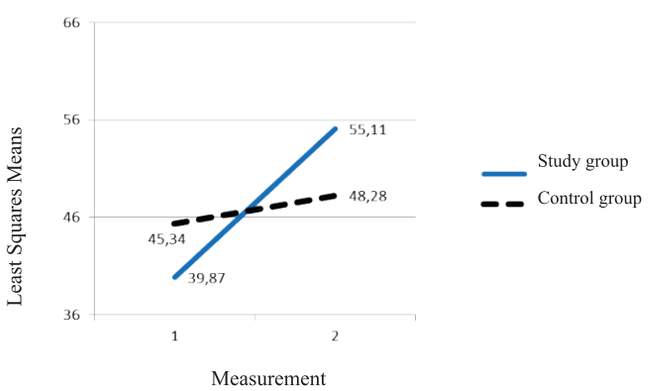

Fig. 25. The strength of the iliopsoas muscle on the right side, before and after the therapy, in the test and in the control group

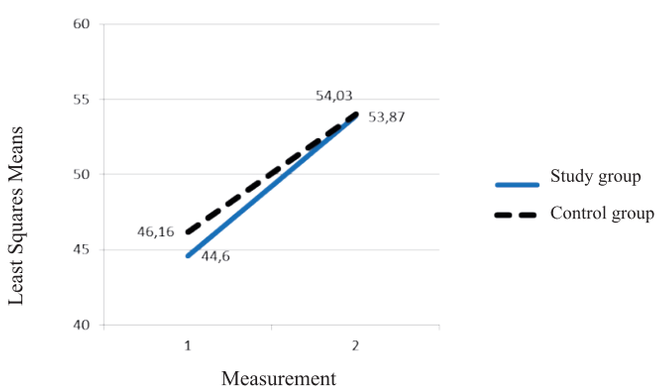

Fig. 26. The strength of the iliopsoas muscle on the left side, before and after the therapy, in the test and in the control group

The analysis of the results has shown a significant change of the iliopsoas muscle strength in the test group, $p=0.032$. While in the control group, the result has been much smaller, $p=0.327$ (Fig. 25).
The analysis of the results indicated the effectiveness of the therapy in increasing the strength of the iliopsoas muscle on the left side in both the test group $p<0.001$ and the control group $p=0.01$ (Fig. 26).

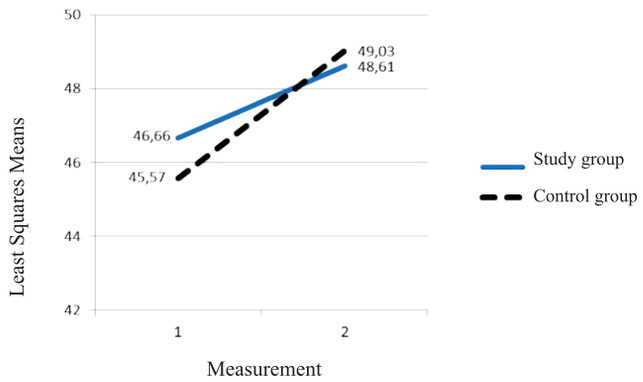

Fig. 27. The strength of the rectus femoris muscle on the right side, before and after the therapy, in the test and in the control group

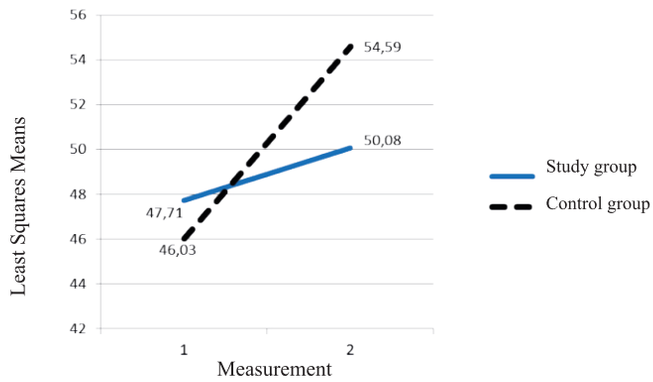

Fig. 28. The strength of the rectus femoris muscle on the left side, before and after the therapy, in the test and in the control group

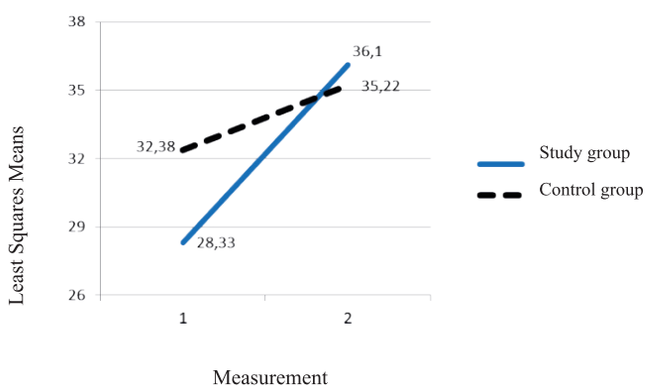

Fig. 29. The strength of the back muscles group of the thigh on the right side, before and after the therapy, in the test and in the control group

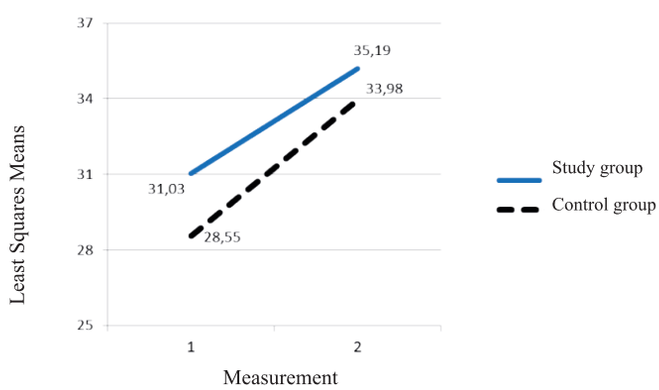

Fig. 30. The strength of the back muscles group of the thigh on the left side, before and after the therapy, in the test and in the control group

The analysis of the results has shown a positive change of the rectus femoris muscle strength in the control group, close to the border value of the accepted statistical significance p=0.058. In the test group, the muscle strength increase has been not statistically significant p>0.05 (Fig. 27).

The analysis of the results has shown a statistically significant change of the muscle strength in the control group $p = 0.003$, and to a lesser extent in the test group $p = 0.032$ (Fig. 28).

Thorough analysis of the results indicates the positive impact of the KT method application in the test group $p < 0.001$. The change of strength in the control group has also been statistically significant $p = 0.013$ (Fig. 29).

The analysis of the data has shown that both the application of the KT method $p < 0.001$, and the standard physiotherapeutic treatment $p < 0.001$ have significantly supported the positive change in muscle strength (Fig. 30).

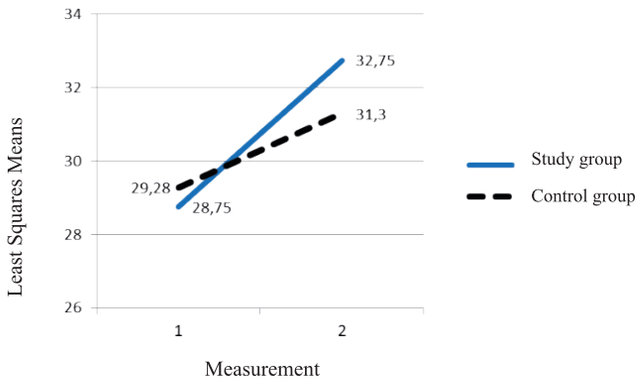

Fig. 31. The strength of the tensor fasciae latae muscle on the right side, before and after the therapy, in the test and in the control group

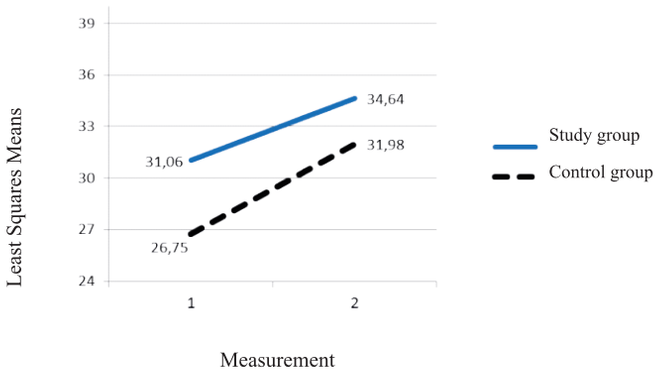

Fig. 32. The strength of the tensor fasciae latae muscle on the left side, before and after the therapy, in the test and in the control group

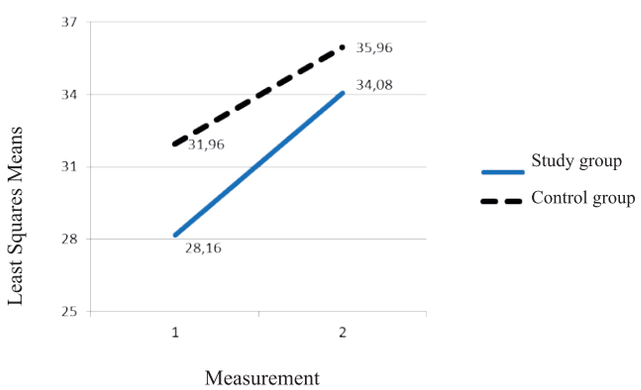

Fig. 33. The strength of the adductor muscles on the right side, before and after the therapy, in the test and in the control group

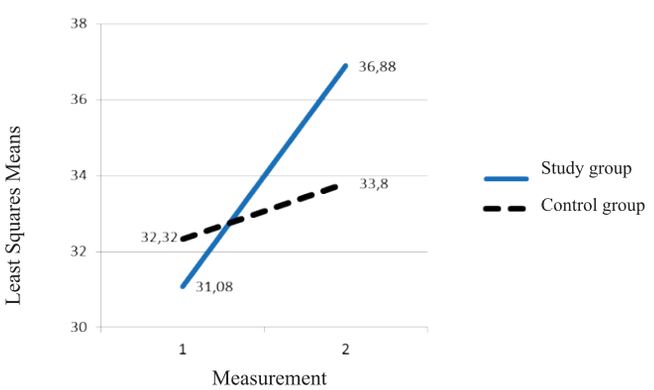

Fig. 34. The strength of the adductor muscles on the left side, before and after the therapy, in the test and in the control group

The analysis of the results has shown that the therapeutic treatment in both groups has had a significant impact on the change of the muscle strength. Still there has been a significant increase observed in the test group $p < 0.001$. In the control group, the change has been significant, but it has been on the border of the accepted statistical significance $p = 0.097$ (Fig. 31).
The result analysis has shown a significant increase of the tested muscle strength, in both groups. In the test and in the control group $p < 0.001$. (Fig. 32)
Data analysis has shown a significant increase of the adductor muscle strength on the right side, after the therapy, in both examined groups. The change of the adductor muscles strength on the right side has been significant in the test group $p < 0.001$ and the control group $p = 0.005$ (Fig. 33).
Upon completion of the therapy, there has been noted an increase of the adductor muscles strength on the left side. The result was better in the test group $p < 0.001$, if compared to the control group, where $p = 0.272$ (Fig. 34).

The results of the evaluation of prevalence of the hypermobility in the female jazz dancers with the 13 tests according to Sachse, for both groups.

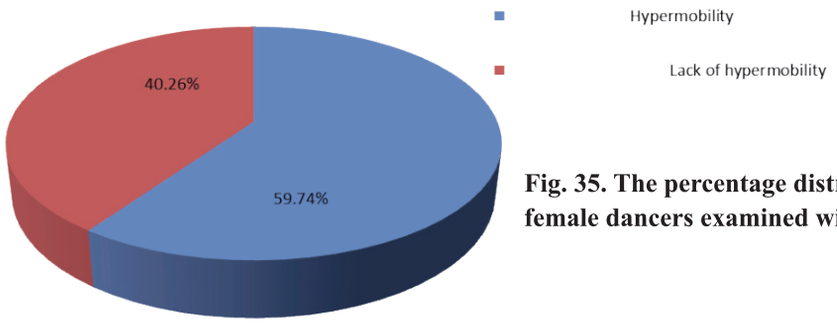

Fig. 35. The percentage distribution of the joint hypermobility in the female dancers examined with the Sachse Test

In the group of jazz dancers the joint hypermobility has been confirmed in 59.74% of the total number.

Table 6. The percentage distribution of the joint hypermobility in the individual tests according to Sachse, in the control group and in the test group

	study group		control group	
	N	%	N	%
Retroflexion of torso	14	56.00	9	47.37
Forward flexion of torso	22	88.00	12	63.16
Lateral flexion	16	24.00	4	21.05
Rotation of torso	10	40.00	9	47.37
Rotation of head and neck	5	20.00	7	36.84
Passive extension of MP	14	56.00	9	47.37
Passive apposition of thumb	10	40.00	8	42.11
Hyperextension of elbow joints	16	64.00	12	63.16
Mobility of shoulder girdle	6	24.00	5	26.32
Mobility of shoulders	14	56.00	9	47.37
Passive extension of knee joints	15	60.00	12	63.16
Passive abduction of hip joints	21	84.00	17	89.47
Rotation of hip joints	5	20.00	6	31.58

The analysis of the results has shown that among the carried out tests, according to Sachse, the highest percentage in both the test group and in the control group, have had the following tests: passive hip joint abduction in the control group has amounted to as much as 89,47% and in the test group to 84%, the test of the passive knee joints extension in the control group has been up to 63.16% and in the test group up to 60%. The smallest percentage has shown the lateral torso flexion test.

Summary of the Results

The results of the analysis indicate, that the application of the KT method has significantly contributed to the increase of the strength of the muscles, for which the statistical significance has been $p < 0,05$ (quadratus lumborum, piriformis, gluteus medius, gluteus maximus, biceps femoris, semitendinosus, semimembranosus and the adductors). There has been no impact of the kinesiology taping on the increase of the strength of the muscles: latissimus dorsi, rectus femoris and the tensor fasciae latae muscle $p > 0.05$.

Discussion

In the lives of contemporary people, the jazz dance has become one of the forms of physical culture, an example of the creative human activity. It does take time to achieve the perfect dancing technique, coordination and the proper fitness of the body as a whole [11, 12].

Many researchers present their views on the impact of dancing on the motor skills development, inter alia A. Karpińska [11] describes the positive influence the contemporary dance has on the motor and coordination skills. According to her, the ability of kinesthetic differentiation of the movements in dance conditions the high precision of the performed movements, both of the individual phases of the movement cycle and of the complex movement tasks. The essence of this ability is the assessment and processing of the information about the angular position of joints (spatial components), the tension of the muscles involved (strength components) and the speed of the movements (time components). These abilities vary, depending on the level of the dancers' technique development. The author stresses, that the contemporary dance significantly contributes to the physical fitness, as it shapes up all of the motor skills.

A. Drohomirecka et al. [12] in their research, have tried to determine the level of the locomotor efficiency of the female dancers from the Szczecin Dance Association "Dance Studio Paa". Their study has shown that the dancers' locomotor efficiency has proved to be better in the majority of the carried out physical fitness tests. The research results and the authors deliberations confirm the positive impact of dance on the development of the motor skills. One of the basic motor skills required in jazz dancers, along with the flexibility, is their muscle strength.

Our research has shown, that the KT method applications have brought about the significant satisfactory effects in increasing the ability to change the muscle tone in the test group on both sides, slightly more so on the right side, while in the case of the control group, there has been found greater efficiency of the standard physiotherapeutic treatment on the left side. We have noticed better effectiveness of the KT method in developing the muscle tone of the gluteus medius and the gluteus maximus muscles in comparison with the control group, as well as the iliopsoas muscle and back muscles group of the thigh on the right side and the adductor mu-

scles on the left side. The therapy in the control group has proved to be significantly more effective for the quadratus lumborum muscle and the quadratus lumborum muscle on the right side and the rectus femoris muscle on the left side. This is perhaps related to the aforementioned functional one-sided dominance of sided certain dancing skills, regardless of the quality of the mor skills. In the subject literature, there is little information on changes of the muscle strength resulting from the KT method application in dancers.

There are reports on the impact of the functional one-sided dominance on the quality of skills such as jumps and pirouettes. Golomer et al. [13] report the dominance of the right lower limb during jumps in ballet dancers. The authors have noticed that the jumps originating from the right leg have been higher in all the examined dancers, while the mass of the muscles in both lower limbs did not significantly differ.

Słupik et al. [14] in their research have focused on the evaluation of the impact of the KT method on the changes in muscle tension of the vastus medialis muscles during an isometric contraction, in the EMG evaluation. In their opinion, the KT method application during 24 hours, on the selected muscle group in the examined persons, has shown a significant impact on the increase of the motor unit recruitment in the muscles. Further examination, carried out by the above the authors after 72 hours, has shown statistically significant increase of the bioelectric muscle activity. However, this increase has been lower than the result of the assessment after the KT method application for 24 hours.

The research by I. Vithoulka et al. [15], whose goal has been the evaluation of the impact of the KT method on the strength of the quadriceps femoris muscle in young women, has clearly shown the parameters increase, i.e.: the maximum torque during eccentric functions of the quadriceps femoris muscle.

M. Wiecheć et al. [16] have carried out research on a group of swimmers, in whom selected applications of the KT method have been performed. The results of their study have shown a significant impact of the applications on the increase strength, force and endurance in the athletes.

Z. Śliwiński et al. [17] in their studies have demonstrated, that the proper applications of the kinesiology tape have had a significant impact on the improvement of the waist angle value, which in turn influenced favourably the change in the course of the stability and equilibrium line in children with scoliosis.

In the medical literature there are many works confirming the effectiveness of the KT method in various disorders and diseases, e.g. the authors Raymond, Nicholson [18], Callaghan [19], Halat [20], in their studies have confirmed the effectiveness of the application of the KT method in a variety of disorders of the Central Nervous System.

The widespread interest which the KT method attracts, makes many authors around the world willing to undertake the attempt to evaluate the impact of this method in various groups of patients. In the subject literature, numerous articles are being published about the positive impact of the KT method on pain reduction, lymphatic swelling reduction and the general improvement in functioning of patients with various ailments. Still, in the opinion of the authors, this method requires further, wider studies and observations, which shall allow for even more effective and efficient application in the procedures of rehabilitation in a variety of clinical cases.

Conclusions

1.In jazz dancers there are symptoms of the joint hypermobility.
2.Screening tests confirm the presence of the functional disorders within the locomotor system of the lower part of the body.
3.The screening tests performed on the jazz dancers confirm the occurrence of the functional disorders in the lower part of their body
4.Muscle and strapping techniques of the kinesiology taping method have impact on the change of the strength of the examined muscles, which has been confirmed by the measurements with digital dynamometer.

Adres do korespondencji / Corresponding author

Zbigniew Śliwiński

59-900 Zgorzelec, ul. Św. Jana 26E
e-mail: dr_sliwinski@post.pl

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